

ON THREE NEW SPECIES OF CULEX COLLECTED DURING THE ANTI-MALARIAL CAMPAIGN IN MAURITIUS IN 1908*

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(WITH ONE PLATE)

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Culex arboricollis, n. sp.

MALE.—*Head*: eyes greenish; occiput yellowish, with long, white and yellow, curved scales and a few hair-like black scales; the yellow scales are placed closely in the line separating the eyes. The *antennae* bear long hairs which are pale yellowish apically and greyish-black basally; the segments of the basal half furnished with very long, narrow curved scales; † apical segment with a few short hairs; the basal segment with short, flat, white scales. Palpi of four segments, as long as the proboscis, with narrow white bands at the base and the apex of the second, third and fourth segments; white scales are disseminated over all the segments. Proboscis black, with the apex paler and a yellowish band in the middle.

Thorax black, covered sparsely with long, narrow curved, white and golden scales, and long, black, hair-like scales; those portions of the thorax which are not covered with scales form velvet black spots. Scutellum bordered with flat whitish scales, and dark hair-like scales; metanotum nude, black.

Abdomen velvety black, with whitish basal bands; apical segment with a few whitish scales at apex; all the segments with long yellowish marginal hairs.

Legs black, with more or less loosely scattered, yellowish scales; the articulations of the femora and tibiae are basally and apically banded; the tarsi are black without any coloured scales; metatarsi of front legs are basally banded; the other tarsal segments are black; in the mid leg the metatarsi and the first tarsal segments are basally

* During the Expedition of Professor Ross, F.R.S., C.B.

† This remarkable insect bears some resemblance to Theobald's genus *Lophoceratomyia*, though it is quite distinct, and a new genus will probably be erected to receive it.—
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handed; in the hind legs the metatarsi are basally banded with yellowish scales, and apically with white scales; all the remaining segments are basally and apically banded with white scales.

Wings spotted. The black spots on the costa extend to the auxiliary vein. They are seven in number and are situated as follows: two small basal ones, the second a little larger than the first, the third one having a white dot in its middle, the fourth and fifth ones united on the auxiliary vein by black scales, the sixth placed obliquely, the seventh near the apex; the other veins are irregularly spotted with white scales, the last vein* which bears the black fringe is regularly spotted white and black on its basal half. The underside of the body presents the following markings: The *pleura* densely covered with imbricated, flat, whitish scales; the trochantae, coxae, and the base of the femora are covered with white scales; the ventral segments of the abdomen are spotted basally with white scales and apically with a well-defined, narrow, white line.

FEMALE.—Proboscis black, with a few scattered white scales, and a white band just below the first anterior third. Palpi longer than the half of the proboscis, with a few scattered white scales and white bands; the apical segment bears two moderately long hairs. The fore part of the occiput is covered with long, narrow curved, white scales; the hind portion with yellow, upright forked scales; the anterior lateral portions with black, upright forked scales. Scutellum with a median and two lateral tufts of long, black hairs, and a few long, flat, curved white scales. The thorax and pleurae as in the male. Halteres yellowish, with small, white scales. The larvae of this species were found by Professor Ronald Ross in the holes of trees at Vacoas; and although the larval habitat was situate near dwellings, no adults were seen in houses or verandahs. This well-marked species is apparently uncommon, and comes near *Culex mimeticus*.

Culex fowleri, n. sp.

FEMALE.—*Proboscis* brown, base paler, with whitish scales. *Palpi* black, with a few long, black hairs; the apex white. *Antennae* brown, spotted with white; first segment bearing white scales. Occiput at the sides covered with flat, imbricated, white and black

* ? Costa.—R. N.

scales; the median portion covered with long, white, narrow, curved scales, black, upright forked scales, and black hair-like scales.

Thorax brown, with two sub-median greyish lines, with long narrow curved, golden scales and black hair-like scales. Scutellum with white scales and golden, hair-like scales.

Abdomen black, with white basal bands. First abdominal segment with a basal white dot and apical white line, the other segments with apical white bands; the penultimate one with two apical spots; the last with lateral white spots. The underside of the abdomen with basal and apical bands.

Legs. Under surface of the femora and trochantae of the posterior legs white; the upper surface brown, with small scattered spots; femora of the fore legs with white scales and hairs at their apices. Metatarsi with the first and second segments white at the base; the femora and tibiae of the mid legs are marked with white at their basal and apical parts. Metatarsi with the first and second segments white at the base. The femora of the hind legs white apically. The veins of the *wings* are covered with brown and white scales. Male similar.

This species is easily distinguished from all other members of the genus *Culex* by the black and white spots on the body of the insect. It was discovered by Major P. Fowler at Vacoa.

Culex ronaldi, n. sp.

FEMALE.—*Proboscis* brown, with a yellowish median band. *Palpi* brown, bearing long hairs. *Antennae* brown; auxiliary hairs black, longer than those situated on the segments which are whitish. Eyes black. Occiput bearing scattered, white, long, narrow curved scales which form a continuous white line round the eyes. Upright forked scales black; hair-like scales black. *Thorax* brown, covered with long, narrow curved, golden scales, and long, black, hair-like scales, these are numerous on the posterior lateral margins. Scutellum with long, narrow, golden scales and black hair-like scales. Halteres white, yellowish at the tips. *Abdomen* black, with basal white bands. Scales of the wings brown. *Legs*: The femora are white apically; the tibiae white basally. Tarsi with narrow dusky white basal bands. Under side of trochantae and femora covered with white scales.

MALE.—*Palpi* a little longer than the proboscis, brownish and hairy at the apex, with a white band at the base of the second segment and in the middle. The articulation of the segments of the antennae are black, the remaining portions of the segments whitish. Eyes black. The lateral portions of the head white; median portion with long, narrow, curved, white scales; upright, forked and hair-like scales, black. The under side of the abdominal segments with large lateral white bands, the penultimate one descending obliquely to the lateral margins.

Found in the larval stage by Major P. Fowler in the broad moat outside Fanfava Bastian, in December, 1907, and January, 1908. Ground marshy, water from few inches to one foot deep, with much coarse grass. The larvae occurred in association with numbers of *P. costalis*.

LIST OF CULICIDAE OF MAURITIUS

ANOPHELINAЕ (Anophelines)

1. *Pyretophorus costalis*, Loew (1866).
Anopheles costalis, Loew (1866).
A. gambiae, Giles (1902).
A. gracilis, Dönitz (1902).

This species has been proved to be the principal carrier of Malaria at Phoenix and Vacoa where they are most numerous. Daruty and d'Emmerez found it very common at Port Louis in 1900. In some places near the sea shore it is uncommon, for example at Rre. At Seclie and Maheburgh very few have been found.

2. *Myzorhynchus mauritianus*, d'Emmerez and Daruty (1900).
Anopheles paludis var. *similis*, Theobald (1901).
A. tenebrosus, Dönitz (1902).

Very common everywhere and especially at Curepipe, Vacoa and Phoenix. All the specimens caught in the open air at Phoenix, Vacoa, where malaria is prevalent, were found not to be infected.

3. *Nyssorhynchus maculipalpis* (Giles).
Anopheles maculipalpis, Giles (1902).

Not common; a few specimens only were caught by Major Fowler at Iron Fanfaren in Port Louis.

CULICINAE

4. *Stegomyia scutellaris*† (Walker) (1859).*Culex scutellaris*, Walker.*C. albopictus*, Skuse.*C. variegatus*, Doleschard.

Very common everywhere, certainly the most abundant species of the island; the larvae occurred in tins, leaves, holes in trees and in the Ananas Sauvages.

5. *Stegomyia fasciata*, Fabricius (1805).*Culex fasciatus*, Fabricius (1805).*C. calopus*, Meigen (1818).*C. taeniatus*, Wiedemann (1898).*C. elegans*, Ficalbi (1896).*C. rossii*, Giles (1899).*C. exagitans*, Walker (1856).*C. konuoupi*, Brullé (1832).*C. zonatipes*, Walker.*C. formosus*, Walker (1848).*C. frater*, Robineau-Desvoidy (1887).*C. excitans*, Walker (1848).*C. viridifrons*, Walker (1848).*C. inexorabilis*, Walker.*C. bancrofti*, Skuse (1886).*C. mosquito*, Aribalzaga (1891).*C. annulitarsis*, Macquart (1848).*C. impatibilis*, Walker (1860).

Very common near the sea shore, in Port Louis; but rather scarce in the high parts of the islands.

6. *Culex arboricollis*, n. sp., d'Emmerez de Charmoy (1908).

The larvae of this interesting species were found in the holes of trees at Vacoa. It is, however, very scarce.

7. *Culex ronaldi*, n. sp., d'Emmerez de Charmoy (1908).

Not common, the larvae were found at Iron Fanfaron. The larvae can be easily differentiated from those of the other species of this Island by its very long siphon tube.

†Theobald (Genera Insectorum, p. 19, 1905) gives *Stegomyia notoscripta* (Skuse) priority.—R.N.

8. *Culex annulioris*, Theobald (1901).

Only one specimen of this species was taken by Colonel Peterkin, at Vacoa.

9. *Culex fowleri*, n. sp., d'Emmerez de Charmoy (1908).

Not common. A few specimens obtained from larvae caught by Major P. Fowler.

10. *Culex tigripes*, d'Emmerez and Daruty (1900).*Culex maculicrura*, Theobald (1901).

Very common, and one of the largest species known. The larvae are carnivorous and they also eat each other.

11. *Culex fatigans*, Wiedemann.*Culex anxifer*, Coquerel (Bigot).

The commonest of all the species. It is very numerous all over the island and very troublesome during the night. The larva are to be seen in all artificial collections of water.

12. *Culex*, spec. incert (male).

A single specimen, caught by Major Fowler agrees in some respect with *C. annulioris*; but it is evidently distinct, though not sufficiently well preserved to render identification possible.

ANOPHELINES THAT TRANSMIT MALARIA

Pyretophorus costalis

228 examples were caught at Clairfond Marsh between February 4, 1908, and February 20, 1908. 73 of these were examined, of which 10 were infected (i.e. 13.7 per cent.).

? *Myzorhynchus mauritiauus*

54 examples which were fed on blood containing crescents and other gametes gave one positive result. (Round pigmented cells ? dead zygotes eight days after the first meal.) 56 other examples caught wild were negative.

EXPLANATION OF PLATE X

Culex tigripes

- Fig. 1.—Right ventral half of the head of the larva.
 Fig. 2.—Anal segments of the larva with siphon tube.
 Fig. 3.—Labial plate of the larva.

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- Fig. 4.—Anal segments of the larva with siphon tube.
 Fig. 5.—Antenna of the larva.

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- Fig. 6.—Wing of the male.
 Fig. 7, *a*, and *b*.—Claws of the tarsi.
 Fig. 8.—Proboscis and antenna of the female.

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- Fig. 9.—Portion of the wing shewing distribution of the scales.
 Fig. 10.—Wing scales.

Nyssorhynchus maculipalpis

- Fig. 11.—Right dorsal portion of the head of the larva.
 Fig. 12.—Anal segments of the larva.
 Fig. 13.—Second anterior abdominal segment of the larva shewing palmate and marginal hairs.
 Fig. 14.—Right anterior portion of the thorax of the larva.

